Occupational Segregation by Sexual Orientation in the U.S.: Exploring its Economic Effects on Same-Sex Couples

Coral del Río and Olga Alonso-Villar

Universidade de Vigo

Abstract

This paper examines the importance of the occupational sorting of individuals in same-sex couples in explaining the economic position of lesbian women and gay men beyond controlling for occupation in the estimation of their respective wage gaps, as usually done in the literature. The analysis reveals that the distribution of partnered gay men across occupations brings them a monetary gain, with respect to the average wage of coupled workers, whereas the occupational sorting of partnered lesbian women only allows them to depart from the large losses that straight partnered women have. The results show that when controlling for educational achievements, immigration profile, racial composition, and age structure, the gain for gay men associated with their occupational sorting shrinks substantially. Moreover, the small gain that lesbian women derive from their distribution across occupations turns into an earning disadvantage when one controls for characteristics. This leaves them with a loss, with respect to the average wage of coupled workers, that is not too different from to the one partnered straight women have. It is their higher educational attainments and, to a lower extent, their lower immigration profile that protects workers in same-sex couples, revealing that gay men do not enjoy the privilege of straight partnered men and that lesbian women are not free from the mark of gender.

JEL Classification: D63; I31; J15; J16

Keywords: Sexual orientation; gender; occupational segregation; wages; well-being

First author: Coral del Río; Universidade de Vigo; Facultate de Económicas; Departamento de Economía Aplicada; Campus Lagoas-Marcosende; 36310 Vigo; Spain. Tel.: +34 986812514; e-mail: crio@uvigo.es.

Corresponding author: Olga Alonso-Villar; Universidade de Vigo; Facultade de Económicas; Departamento de Economía Aplicada; Campus Lagoas-Marcosende; 36310 Vigo; Spain. Tel.: +34 986812507; e-mail: ovillar@uvigo.es.

1. Introduction

In recent years, increasing empirical research has been done on same-sex households, mainly based on U.S. data, which explores whether patterns observed in these households—in particular, the ones involving the labor market—are the same as those found in the literature for different-sex couples. Thus, Oreffice (2011) reveals that intra-household bargaining power affects the labor supply decisions made in homosexual couples, which is already known for heterosexuals. As for household specialization (i.e., whether a partner is more devoted to the labor market than the other is), Giddings et al. (2014) and Jepsen and Jepsen (2015) show that all types of households, whether heterosexual or homosexual, have certain levels of specialization, although this is more intense for the former. Their results are in line with previous studies that suggest a more egalitarian distribution of household work in same-sex households (Solomon et al. 2005) and those that show the existence of fewer differences between same-sex partners in terms of labor participation (Leppel 2009). The literature also shows that sexual orientation affects the labor supply (Tebaldi and Elmslie 2006), with men (women) in same-sex couples working fewer (more) hours than men (women) in different-sex couples do.

The myth of gay affluence has also been debated in the economics literature, at least since the publication of Lee Badgett's (2001) book "*Money, Myths, and Change: The Economic Lives of Lesbians and Gay Men,*" where the author refutes the widespread belief that homosexuals enjoy an advantageous position in U.S. society. The portrait of a gay population with fewer family responsibilities, more hedonic attitudes, and in a well-to-do situation, mainly associated with a privileged position in the labor market, has created social narratives that include both the alleged existence of a "pink mafia," consisting of gay men in economic and political centers of power helping one another, and a "queer conspicuous consumer" whom various industries/business want to attract. Along with these stories, others have also been built from experiences of legal and/or social discrimination that the homosexual population has faced in areas as diverse as health care, education, welfare protection, the work setting, or economic benefits linked to marriage, among others (Badgett 2007; Carpenter 2007a, b).

Different studies show that lesbian women and gay men in the U.S. have higher educational achievements than heterosexuals. Given that the position of a group in the labor market is certainly not independent of its educational attainments, gay people are expected to achieve a good economic position. However, if occupational segregation exists—in our case, by sexual orientation and gender—higher educational achievements may not necessarily go hand-in-hand with higher wages, as occupations requiring common educational levels may pay differently. In fact, occupations are a mechanism that generates social stratification and inequality (Mouw and Kalleberg 2010). In particular, evidence exists that occupational segregation explains a large part of the gender pay gap (Petersen and Morgan 1995; Cotter et al. 1997; Blau and Kahn 2017), despite the higher educational achievements of women compared with men. However, although segregation by gender—and the consequences it has on women's economic position—has been extensively studied in the literature,[1] segregation by sexual orientation remains almost unexplored.

As Tilcsik et al. (2015, p. 2) point out, "the occupational segregation of gay and lesbian workers—'one of the largest, but least studied minority groups in the workforce' (Ragins, 2004:35)—presents an unresolved puzzle for researchers." A few studies document high concentrations of homosexuals in certain occupations, although the reasons behind these concentrations are not easy to determine because many factors seem to be involved (Badgett and King, 1997; Baumle et al., 2009). Some scholars argue that gay people may perceive some occupations as more suitable—perhaps because they are more tolerant than others are (Badgett and King 1997; Plug et al. 2014)—or because they entail higher levels of task independence (Tilcsik et al. 2015). A larger

---

[1] See Bianchi and Rytina (1986), Reskin et al. (2004), Levanon et al. (2009), Blau et al. (2013), and Alonso-Villar and Del Río (2017b), inter alia.

representation of this group in some occupations could arise from a stronger discrimination in others or to avoid major penalties in the case of disclosure. [2]

The aim of this paper is to explore the occupational sorting of lesbian women, gay men, straight women, and straight men in couples so as to answer four questions: 1) Do same-sex partnered workers have a more (less) uneven distribution across occupations compared with different-sex partnered workers; 2) Do occupations in which same-sex partnered workers are overrepresented pay less than those in which they are underrepresented?; 3) Does the occupational sorting of these groups play an important role in the economic positions they have?; and 4) Do the answers to the last two questions change when accounting for differences in basic characteristics among the four groups?

For undertaking the analysis, this paper uses the 2010-2014 5-year sample of the Integrated Public Use Microdata Series (IPUMS), which is drawn from the American Community Survey (Ruggles et al. 2015). This survey includes occupation, using a detailed classification that accounts for more than 450 occupational titles, and provides a wide range of economic and demographic information regarding individuals and households. Although this large survey does not offer information about individuals' sexual orientations, it does allow for identifying individuals in same-sex couples. More than 53,000 of such workers are in the sample, which is a higher number than that provided by alternative datasets with more information about sexual orientation.

To answer the above questions, we use novel tools that have been recently put forward in the literature. Thus, the indices proposed by Alonso-Villar and Del Río (2010) allow us to calculate the segregation level of a group in a multigroup context without making pairwise comparisons. The strategy we follow to quantify a group's occupational segregation is to compare its occupational sorting with the occupational structure of the benchmark economy. This benchmark could be total employment in the economy but also the employment of individuals living with a partner. This paper explores both scenarios. With these measures we quantify the segregation levels of lesbian women and gay men, which remained unknown.

To appraise the occupational sorting of each target group, we use the tools developed by Del Río and Alonso-Villar (2015) and Alonso-Villar and Del Río (2017a). These measures take into account the relative pay of the occupations that a group tends to fill or, on the contrary, not to fill—that relative pay being the average wage of the occupation divided by the average wage of the economy. These measures allow for not only assessing the occupational sorting of each group—both in monetary terms and in terms of (objective) well-being—but also quantifying the extent to which occupational sorting explains a large part of the earnings of each group. Finally, to calculate the wage advantage/disadvantage of each group while controlling for the basic characteristics of the groups, such as education, age, racial/ethnic composition, and immigration profile, we built counterfactual distributions following DiNardo et al. (1996) and Gradín (2013).

As in Antecol et al. (2008), our analysis shows that the educational achievements of gay men and lesbian women help with understanding the positions of these two groups in the labor market. However, unlike this study, we find that the occupational sorting of the four groups plays an important role in explaining the earnings of workers in same-sex couples once we control for characteristics. In fact, the sorting negatively affects gay men and, especially, lesbian women compared with straight men who have "similar" attributes.

Our approach departs from the one followed in earlier studies in various ways. First, this paper analyzes the four groups using a common reference, the average wage of the benchmark economy, rather than comparing lesbian women and gay men only with their respective straight counterparts. In other words, it places the emphasis on the interaction between sexual orientation and gender, as the combination of the two characteristics provides a unique position for each group in the labor market. Second, our approach allows focusing the lens

---

[2] Other investigations point out that the timing of the first same-sex sexual experience may affect individuals' cognitive skills, although no consensus has been reached with respect to the sign of these effects (Baumle et al. 2009; Ueno et al. 2013).

on occupations, distinguishing among more than 450 titles, which is unusual in analyses aimed at exploring the role of occupational sorting in explaining the wage gap. Note that carrying out the popular Oaxaca-Blinder decomposition with a fine occupational classification would be difficult because the regression analysis would require considering a dummy for each occupational title. A fine classification would also be problematic when one builds counterfactuals that involve making gay people with certain characteristics, who are quite small groups, sort into these occupational titles similarly to their straight counterparts (which may explain why Antecol et al. 2008 use a broad classification that accounts for only 21 occupations). By using a fine classification and a suitable methodology in which occupations are the core of the analysis, we offer a more precise estimate of the role played by occupational sorting in explaining the earnings differences among the groups. Third, this paper quantifies the fraction of the earning advantage (disadvantage) that each gender-sexual orientation group faces due to its occupational sorting, which had not been quantified so far. Forth, to determine the contribution of each factor in explaining the changes between each group's initial situation and its situation in the counterfactual analysis (i.e., after controlling for characteristics), we use the Shapley decomposition (Sastre and Trannoy 2002; Shorrocks 2013; Gradín 2013). This decomposition does not depend on the order in which the attributes of the groups are included in the analysis, which is also a novelty compared with what is usually done in the wage gap literature.

2. Methodology

In this section, we present the measures that we use in subsequent sections to explore occupational segregation in the U.S. by sexual orientation and gender. We have classified these tools in three classes: the measures that a) allow us to calculate a group's segregation level (labeled local segregation measures); b) allow us to quantify the economic consequences of a group's occupational sorting, both in monetary terms and in terms of (objective) well-being; and c) allow us to explore the advantages or disadvantages of a group within occupations, which permits displaying the other component of the total gains or losses of a group due to its situation in the labor market. Once we determine a group's total loss or gain and the two components, we can find out whether segregation plays an important role in that total.

2.1 Local segregation measures

This paper follows the approach developed by Alonso-Villar and Del Río (2010) in a multigroup context, according to which a group is said to be segregated so long as it is overrepresented in some occupations and underrepresented in others, as compared to the employment distribution of the benchmark economy across occupations.[3] In other words, a group is said to be segregated insofar as it is unevenly distributed across occupations. There are different ways of measuring the extent to which the occupational sorting of a group departs from the occupational structure of the benchmark economy and, therefore, quantifying the segregation of that group. In what follows, we present the indices that we use to measure the segregation of each group g:

$$D^g = \frac{1}{2} \sum_j \left| \frac{c_j^g}{C^g} - \frac{t_j}{T} \right| \tag{1}$$

$$G^g = \frac{\sum_{i,j} \frac{t_i}{T} \frac{t_j}{T} \left| \frac{c_i^g}{t_i} - \frac{c_j^g}{t_j} \right|}{2 \frac{C^g}{T}} \tag{2}$$

---

[3] This approach is different from the one usually followed in the literature. Thus, for example, the popular index of dissimilarity would require to compare the occupational sorting of lesbian women with that of another group (straight women, straight men, or gay men).

$$\Phi_\alpha^g = \begin{cases} \displaystyle\sum_j \frac{c_j^g}{C^g} \ln\left(\frac{c_j^g/C^g}{t_j/T}\right) & \alpha=1 \\[2em] \displaystyle\frac{1}{\alpha(\alpha-1)}\sum_j \frac{t_j}{T}\left[\left(\frac{c_j^g/C^g}{t_j/T}\right)^\alpha - 1\right] & \alpha \neq 0,1 \end{cases}$$
(3)

where c_j^g stands for the number of workers of group g in occupation j, $C^g = \sum_j c_j^g$ is the total number of workers of group g, t_j is the size of occupation j in the benchmark economy, and $T = \sum_j t_j$ is total employment in the benchmark economy. Index D^g, whose values are bounded between 0 and 1, is a variant of the dissimilarity index and was initially proposed in a binary context by Moir and Shelby Smith (1979). It has a clear economic interpretation: a value of 0.2 means that 20% of workers of the group would have to shift occupations to have no segregation (without altering the occupational structure of the benchmark economy; see Alonso-Villar and Del Río 2017c). Index G^g, adapted from the popular Gini index, is also bounded between 0 and 1. Φ_α^g is a family of unbounded indices—related to the generalized entropy family of inequality indices—which depends on a parameter, α, that denotes aversion toward segregation. Loosely speaking, the lower the value of this parameter, the more the index is affected by the underrepresentation of the group in some occupations. In other words, if underrepresentation is a phenomenon more intense for group A than it is for group B, group A's segregation is more likely to be greater than group B's if we use $\Phi_{0.1}$ than if we use Φ_2, for example. In our empirical analysis, we use four values of this parameter: 0.1, 0.5, 1, and 2, which are quite standard in the literature on economic inequality.

Apart from these indices, to measure a group's segregation, we also use the local segregation curve, S^g, defined by Alonso-Villar and Del Río (2010). To build this curve, firstly, we have to rank occupations from those where the group has the lowest representation to those with the highest (the representation is given by $\frac{c_j^g}{t_j}$). By denoting by $\tau_j \equiv \sum_{i\leq j} \frac{t_i}{T}$ the proportion of employment accounted for by the first j occupations, the value of the curve at this point is the share of group g working in those occupations. Namely,

$$S^g(\tau_j) = \sum_{i\leq j} \frac{c_i^g}{C^g}.$$
(4)

The first occupation is the one where group g has the lowest representation. Let us say, for example, that that occupation accounts for 5% of total employment and that 2% of the members of group g work there. This means that the curve at point 0.05 is equal to 0.02. Consider now that the occupation in which the group has the second lowest representation is one that also accounts for 5% of total employment whereas 3% of the members of the group work there. Then, taken together, these two occupations account for 10% of total employment and 5% of the members of the group. This implies that the curve at point 0.1 is equal to 0.05. Therefore, this curve shows the underrepresentation of the group with respect to the cumulative proportion of the employment that occupations, ranked according to the criterion mentioned above, account for (Figure 1). The value of this curve at point 0.1 is the share of the group that works in the occupations where it has the lowest representation and that accumulate 10% of the employment of the benchmark economy. The curve at point 0.2 shows the proportion of the group that works in occupations that jointly represent 20% of employment and in which the group has the lowest representation, and so on. The closer the curve is to the 45º line, the lower the segregation of the group.

There are different ways of measuring how far the curve is from that line. As Figure 1 shows, D^g represents the highest vertical distance between them. G^g is twice the area between the curve and the line. The indices Φ_α^g do

not have an easy interpretation, although the lower the value of α, the more affected the index is by the shape of the curve at values close to zero, which is where the group has the lowest representation.
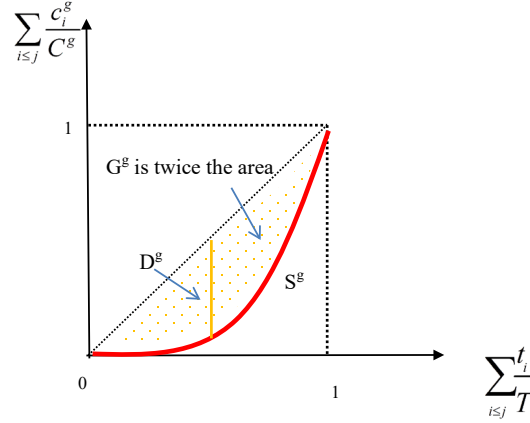

Figure 1. Example of a local segregation curve, S^g, and its relationship with D^g and G^g.

An advantage of using these curves, rather than the indices, is that if a group's curve is never below that of another group and is above it at some points, then many indices satisfying good properties would lead to the same conclusion: segregation is lower for the group whose curve is closer to the 45º line, and it is not necessary to calculate those indices. In particular, all the indices shown above, except D^g, behave that way. In other words, they are consistent with the conclusions given by the ranking of the curves. If the curves cross, however, we cannot conclude which group has higher segregation, and in those cases, the indices become absolutely necessary.

The use of the different indices in the analysis will allow us to check the robustness of our results to changes in the way the differences between the occupational sorting of a group and the occupational structure of the benchmark economy are formulated.

2.2 Measuring the Economic Consequences of Segregation for each Group

So far, we have shown simple tools with which to quantify how unevenly a group is distributed across occupations. However, unevenness is not necessarily something bad for a group. Consider, for example, the case where the group under study is fully concentrated in the highest paid occupation of the economy. That situation is completely different from that where the group is concentrated in the lowest paid occupation.

We now present several indicators developed in Del Río and Alonso-Villar (2015) and Alonso-Villar and Del Río (2017a) with which to assess the occupational sorting of a group taking into account the relative pay of occupations (i.e., the ratio between the average wage for an occupation and the average wage of the economy). We use the following indices:

$$\Gamma^g = \sum_j \left(\frac{c_j^g}{C^g} - \frac{t_j}{T} \right) \frac{w_j}{\bar{w}} \tag{5}$$

$$\Psi_\varepsilon^g = \begin{cases} \sum_j \left(\dfrac{c_j^g}{C^g} - \dfrac{t_j}{T} \right) \ln \dfrac{w_j}{\bar{w}} & \varepsilon = 1 \\[4mm] \sum_j \left(\dfrac{c_j^g}{C^g} - \dfrac{t_j}{T} \right) \dfrac{\left(\dfrac{w_j}{\bar{w}} \right)^{1-\varepsilon} - 1}{1-\varepsilon} & \varepsilon \neq 1 \end{cases} \tag{6}$$

6

where w_j denotes the average hourly wage of occupation j and $\overline{w} = \sum_j \dfrac{t_j w_j}{T}$ is the average hourly wage of the benchmark economy.

As Del Río and Alonso-Villar (2015) prove, Γ^g measures the per capita monetary loss or gain that group g derives from its occupational sorting (as a proportion of the average wage of the benchmark economy). Instead, the indices Ψ_ε^g quantify group g's per capita well-being loss or gain (Alonso-Villar and Del Río 2017a). This family is parameterized by a parameter, ε, that denotes aversion toward inequality within the group, which arises from the fact that the individuals of the group work in occupations with different relative wages ($\dfrac{w_j}{\overline{w}}$).

The higher the value of ε, the more attention the index pays to differences among individual members of the group. All indices of this family have something in common: a group's underrepresentation in an occupation contributes negatively to the index only if that occupation is highly paid, while overrepresentation does so when it takes place in low-paid jobs. Index Γ^g can be obtained from the above family when the inequality aversion tends to zero.

The indices Γ^g and Ψ_ε^g share some properties and differ in others. They are equal to zero when either the group has no segregation or all occupations have the same wage, and they increase when some individuals of the group move from one occupation to another that has a higher wage. However, Ψ_ε^g is a well-being function and, as such, it cares not only about the size of the "cake"—i.e., the earnings of a group associated with its occupational sorting—but also individuals' share of the "cake." Thus, for example, if 10 individuals of group g leave an occupation to move to another that pays 1 extra euro per hour, Ψ_ε^g increases more than if only 1 individual in the same initial occupation had moved to an occupation with an extra paid per hour of 10 euros (other things being equal). Even though the monetary change involves 10 euros in both cases, the first situation leads to a higher Ψ_ε^g value because this index cares about inequality. Instead, Γ^g only cares about the gain of the group associated with that movement and, therefore, it would take the same value in the two cases. Likewise, when a group's individual member moves to another occupation, Ψ_ε^g increase more, the lower the wage of the occupation left behind, while for Γ^g the effect does not depend on the starting point. Therefore, the main difference between Γ^g and Ψ_ε^g is that the former does not show inequality aversion while the latter does.

These measures allow us to move beyond the mere measurement of unevenness to focus attention on its economic consequences, either monetary or in terms of (objective) well-being, which is where the main problem lies. We use both types of measures in our empirical analysis to check the robustness of the results to changes in inequality aversion within the group.

2.3 Measuring the Losses or Gains of each Group within Occupations

Apart from the advantages or disadvantages that a group has due to its occupational sorting, in each occupation the group may face higher or lower wages than other groups. The whole earning differential that group g has as a consequence of both factors can be written as $C^g \sum_j \dfrac{c_j^g}{C^g} w_j^g - C^g \sum_j \dfrac{t_j}{T} w_j$, where w_j^g denotes the average wage that group g receives in occupation j (which may differ from the average wage for that occupation, denoted by w_j). Following Del Río and Alonso-Villar (2015), if we divide this differential by $C^g \overline{w}$—which represents the total wage revenues that the group would have if it had no segregation and no wage disparities within occupations with respect to other groups—we obtain the (per capita) earning gap ratio of the group ($EGap^g$).

This ratio can be decomposed in two terms, one denoting group g's monetary loss or gain due to segregation, Γ^g, and the other standing for its loss or gain within occupations, Δ^g:

$$\text{EGap}^g = \left(C^g \sum_j \frac{c_j^g}{C^g} w_j^g - C^g \sum_j \frac{t_j}{T} w_j \right) \frac{1}{C^g \overline{w}} =$$

$$= \underbrace{\sum_j \left(\frac{c_j^g}{C^g} - \frac{t_j}{T} \right) \frac{w_j}{\overline{w}}}_{\Gamma^g} + \underbrace{\left[\sum_j c_j^g \left(w_j^g - w_j \right) \right] \frac{1}{C^g \overline{w}}}_{\Delta^g}. \tag{7}$$

Note that this (per capita) earning gap ratio is nothing but the differential between group g's average wage and the average wage of the economy divided by the latter.

Following Alonso-Villar and Del Río (2017a), analogous expressions can be used to quantify a group's well-being losses or gains rather than the monetary ones. Thus, the (per capita) well-being advantage or disadvantage (WAD_ε^g) that group g faces in the labor market as the result of both occupational segregation and within-occupation wage disparities with respect to other groups can be decomposed as follows:

$$WAD_\varepsilon^g = \begin{cases} \Psi_\varepsilon^g + \underbrace{\sum_j \frac{c_j^g}{C^g} \left[\ln \frac{w_j^g}{\overline{w}} - \ln \frac{w_j}{\overline{w}} \right]}_{\Omega_\varepsilon^g} & \varepsilon = 1 \\[4em] \Psi_\varepsilon^g + \underbrace{\sum_j \frac{c_j^g}{C^g} \left[\frac{\left(\frac{w_j^g}{\overline{w}} \right)^{1-\varepsilon} - 1}{1-\varepsilon} - \frac{\left(\frac{w_j}{\overline{w}} \right)^{1-\varepsilon} - 1}{1-\varepsilon} \right]}_{\Omega_\varepsilon^g} & \varepsilon \neq 1 \end{cases} \tag{8}$$

where Ω_ε^g represents group g's well-being loss or gain within occupations.

By using decompositions (7) and (8), one can determine whether segregation is an important component of the earning gap ratio and the well-being loss (or gain) of the group, respectively.

3. The Extent of Occupational Segregation

We now explore whether our target groups are evenly or unevenly distributed across occupations, using the indices described in Section 2.1. Later on, in Section 4, we explore whether this unevenness brings earnings advantages or disadvantages to the groups, which depends on the relative pay of occupations that each group tends to fill or not to fill.

3.1 The data

We use the 2010-2014 5-year sample of the American Community Survey (ACS) provided by the IPUMS (Ruggles et al. 2015). The list of occupations has 453 titles, and the wage of each is proxied by the hourly average wage.[4] To obtain this wage, we compute the trimmed average in each occupation, eliminating all workers whose wage is zero, missing, or situated below the first or above the 99th percentile of positive values in that occupation, which prevents data contamination from outliers.

---

[4] The total list includes 458 occupations but in 5 of them there is no employment during this period. The hourly wage of each worker is calculated by dividing the annual wage by the product of usual hours worked per week and weeks worked last year. Since the latter is an intervalled variable, we take the midpoint value.

In this dataset, sexual orientation can be identified based on the gender of individuals living in couple households since we can identify the sex of the householder and that of the householder's partner. For simplicity, we labeled women and men who live in same-sex couple households, either married or not, as lesbian women and gay men, respectively, although we are aware of the fact that these couples we do not cover the whole population of homosexual workers in the economy. Likewise, straight or heterosexual workers are those in different-sex couples. Individuals who are not identified in the IPUMS as living in a couple are labeled as unpartnered workers and this group includes both homosexuals and heterosexuals. The sample consists of nearly 7 million workers: 53,032 individuals living in same-sex couples (25,874 gay men and 27,158 lesbian women), 4,235,209 individuals in different-sex couples, and 2,661,913 unpartnered workers. Once we use the sample weights, these groups represent, respectively, 0.7%, 56.5%, and 42.9% of total workers.

Some basic characteristics of these groups are shown in the Appendix (Table 7). Partnered homosexual workers have higher educational achievement than heterosexuals, the educational achievements of gay men being only slightly above those of lesbian women. In addition, homosexuals in couple relationships tend to be younger than heterosexuals but older than unpartnered individuals. The share of workers born in the U.S. is larger for homosexuals, especially in the case of lesbian women. The differences between partnered homosexuals and heterosexuals based on race are small except that Asian women and black men have a larger presence among heterosexuals. [5]

3.2 Occupational Segregation by Sexual Orientation

We first look at the distributions of partnered homosexual and heterosexual workers, apart from unpartnered workers, across occupations. Figure 2 shows the local segregation curves for each of these three groups (the benchmark against which we compare the occupational sorting of each group here is the distribution of total employment across occupations). The chart reveals that the three groups are underrepresented in some occupations and overrepresented in others, although this pattern is of a larger magnitude in the case of partnered homosexuals. The curve for partnered homosexual workers is clearly below the other curves. This implies that this demographic group has a higher segregation level not only with the local segregation curve but also with all the indices consistent with the dominance criterion given by the curves (no matter what additional value judgement each of these indices incorporates). As shown in Table 1, the values of the six local segregation indices all reveal higher segregation for homosexuals. For simplicity, the superscript g, which stands for group g, has been removed from all the indices.

Using the interpretation of index D, we can say that at least 22.5% of partnered homosexuals would have to switch occupations in order to have an occupational sorting identical to the occupational structure of the U.S. economy. In other words, almost one out of four workers living in same-sex couples would have to change occupations to ensure that in each of the 453 occupations into which the economy is classified, partnered homosexuals account for 0.7% of the employment of the corresponding occupation (i.e., the group's weight in the economy).

Regarding the relationship between partnered heterosexual workers and unpartnered workers, we see that the curve for the former is closer to the 45º line in almost all the points at which it has been estimated, with the exception of the first two deciles (these two curves cross when the cumulative employment is around 0.2). Table 1 shows that although in theory there may exist some indices for which unpartnered workers have lower segregation, according to all the indices employed in this study, the occupational sorting of heterosexuals in

---

[5] The characteristics of gay people in the ACS may be influenced by the fact that some individuals in same-sex households may not report the true information about their relationship with the householder (Berg and Lien 2009). This may cause some bias if individuals hiding a same-sex couple relationship are those whose attributes make them more vulnerable in case of disclosure. On the other hand, assortative matching may be different for homosexuals and heterosexuals (Schwartz and Graf 2009), which may also affect the characteristics of our couples.

couple relationships is more even. Thus, for example, index *D* reveals that only 9.4% of these workers would have to change occupations to ensure the group has no segregation, while in the case of unpartnered workers this rate rises to 12.5%.
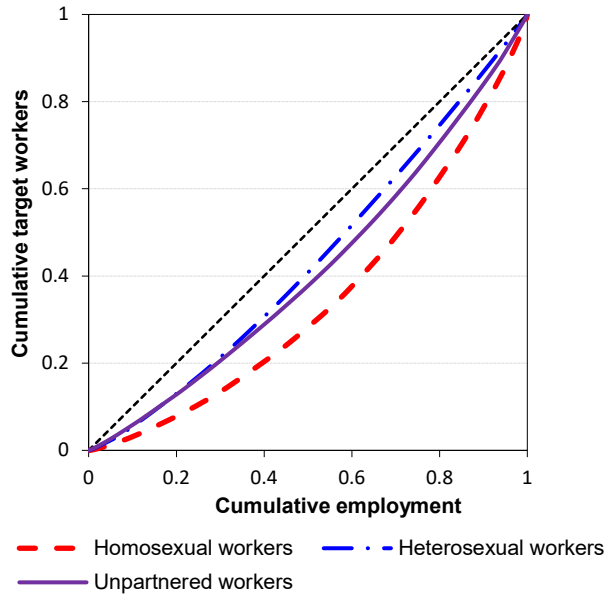

Figure 2. Local segregation curves of sexual-orientation groups (benchmark: total employment)

	$\Phi_{0.1}$	$\Phi_{0.5}$	Φ_1	Φ_2	D	G
Homosexual workers	0.161	0.150	0.147	0.158	0.225	0.303
Heterosexual workers	0.032	0.030	0.028	0.026	0.094	0.128
Unpartnered workers	0.045	0.045	0.045	0.046	0.125	0.170

Table 1. Segregation levels of sexual-orientation groups using several local segregation indices (benchmark: total employment)

We can therefore conclude that despite the fact that the curve for partnered heterosexual workers does not dominate the other two curves, for a wide set of value judgements—those underlying the definition of this set of indices—these workers have a more even distribution across occupations, with less overrepresentation and underrepresentation than the other two groups have.

However, these findings hide something that is well-known in labor markets all over the world: the remarkable discrepancies that exist between the occupations filled mainly by men and women. For this reason, from now on, we study women and men separately.

3.3 Occupational Segregation by Sexual Orientation and Gender

We now focus on the occupational distributions of lesbian women, straight women, gay men, and straight men in couple households. We also include unpartnered women and men regardless of sexual orientation. The aim is to explore whether individuals' gender affects homosexual and heterosexual workers in the same way. The first analysis compares the distribution of each of these six groups with the occupational structure of the economy. Table 2 shows the values of the segregation indices for all groups whereas, for the sake of graphical clarity, Figure 3 only shows the segregation curves for the four groups of partnered individuals.

	$\Phi_{0.1}$	$\Phi_{0.5}$	Φ_1	Φ_2	D	G
Lesbian women	0.201	0.166	0.158	0.171	0.214	0.304
Straight women	0.372	0.296	0.249	0.225	0.279	0.381
Unpartnered women	0.352	0.285	0.244	0.224	0.275	0.379
Gay men	0.244	0.217	0.217	0.258	0.270	0.362
Straight men	0.333	0.280	0.243	0.217	0.286	0.379
Unpartnered men	0.220	0.199	0.184	0.181	0.244	0.338

Table 2. Segregation levels of gender-sexual orientation groups using several local segregation indices (benchmark: total employment)
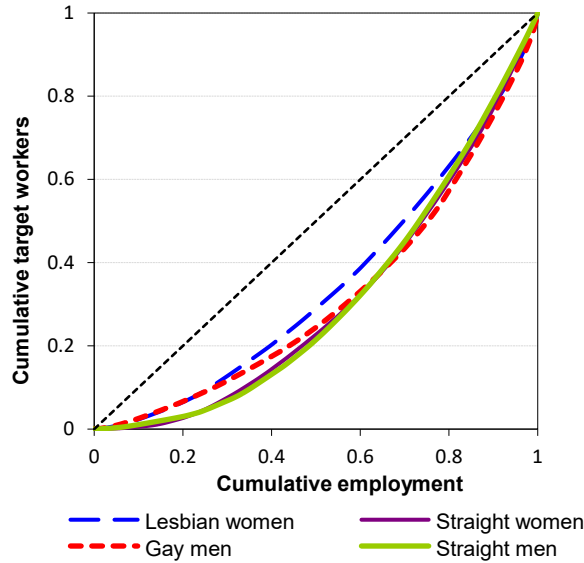

Figure 3. Local segregation curves of gender-sexual orientation groups (benchmark: total employment)

At first glance, we see that, as expected, the segregation levels of heterosexual workers increase notably when women and men are considered separately—the values of index D reach 0.28 and 0.29 respectively, while before it was 0.09.[6] However, homosexual women and men have segregation levels (0.21 and 0.27, respectively, according to index D) that are similar to those shown before when there was no distinction by gender (0.22). This suggests that the overrepresentation/underrepresentation of lesbian and gay workers in occupations is less correlated with the degree of feminization/masculinization of occupations than it is for heterosexual workers (and also for unpartnered). In other words, the mark of gender affects the occupational sorting of partnered homosexual workers to a lower extent than it does heterosexuals.

In addition, although no curve dominates any of the others, we can see that lesbian women are the group with the lowest level of segregation according to all the indices we have calculated, while heterosexual women are among the most segregated groups, closely followed by heterosexual men (and unpartnered women). If we focus on index D, we see that there are nearly 7 percentage points of difference between lesbian and straight women, whereas the differences between gay and straight men are much lower. Notwithstanding this, in general, heterosexual men are more unevenly distributed across occupations than homosexual men (the exception is Φ_2). It is also noticeable that the segregation level of gay men varies a lot depending on the index used. In some cases, it has an intermediate level, while in others it reaches the highest level. These changes can be explained by looking at the segregation curve for this group, which is the closest to the 45° line in the first deciles but the

---

[6] Something similar happens to unpartnered workers (see Tables 1 and 2).

most distant in the last deciles, the latter pattern implying an unusual concentration of the group in some occupations (which explains the high value of Φ_2).

Additionally, we observe that the curves for heterosexual women and men are quite similar—thus explaining the similarity that exists between the corresponding indices—whereas the curves for lesbian and gay workers are similar only in the first deciles, where they are above the curves of their straight counterparts. In other words, the underrepresentation of lesbian women and gay men in the occupations in which each of these groups has the lowest presence is less intense than the corresponding underrepresentation in the case of their straight counterparts. This could be another indication that the mark of gender is lower for homosexuals in the case of occupations with the highest levels of masculinization/feminization.

Next we test the hypothesis that the occupational sorting of homosexuals is less gender biased than that of heterosexuals proceeding as follows. First, we rank occupations from lower to higher feminization rates. Second, keeping that ranking, we split female employment into 5 quintiles, each of them accounting for 20% of women's employment. Figure 4 displays the employment share of each of our demographic groups, together with that of the entire economy, in each of these quintiles (Figure 10 in the Appendix shows the corresponding graph in the case of men).
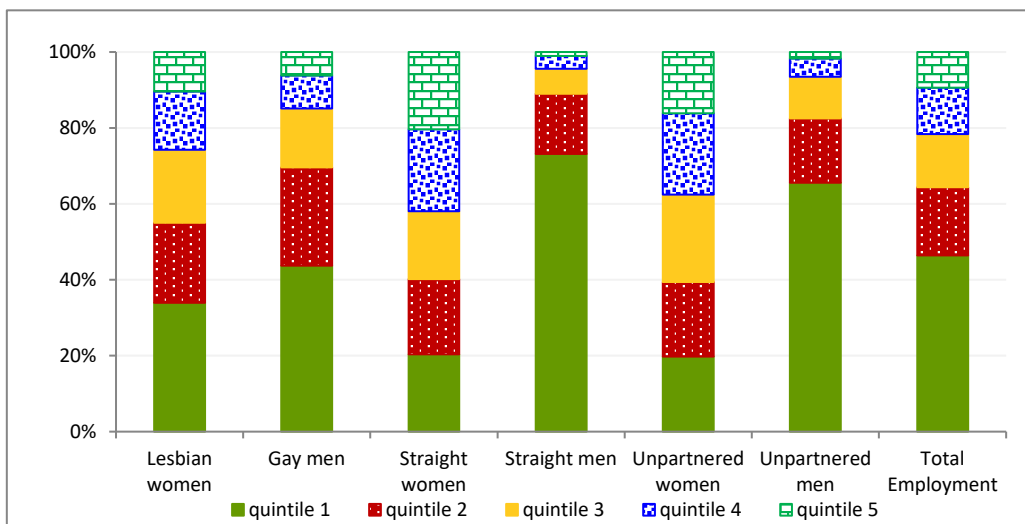

Figure 4. Employment share of each gender-sexual orientation group in each quintile of female employment (employment ranked by feminization rates of occupations)

Thus, the first quintile represents the most masculinized occupations of the economy while accounting for 20% of employed women. These occupations represent 46% of total employment (see the height of the first quintile of "Total Employment") and employ 20% of either straight or unpartnered women, 34% of lesbian women, 44% of gay men, 66% of unpartnered men, and 73% of straight men (see the other columns of Figure 4). At first glance, we see that the distributions of partnered lesbian and gay workers across these quintiles are more similar to each other (and also to that of the economy as a whole) than the distributions of partnered heterosexual workers (and also those of unpartnered workers). Moreover, the differences between the distributions of heterosexual women and men are striking.

Although not shown in the paper, the share of lesbian workers is more than twice the employment share of the following occupations: education administrators; social and community service managers; counselors; social workers; and postsecondary teachers. In these occupations, straight women are overrepresented as well, but to a lower extent. Lesbian women also have a major presence in other occupations in which heterosexual women are clearly underrepresented, as is the case of computer scientists and system analysts; network systems analysts and web developers; lawyers, judges, magistrates, and other judicial workers; physicians and surgeons; police officers and detectives; security guards; sheriffs, bailiffs, correctional officers, and jailers; actors, producers,

and directors, inter alia. There is also a wide set of highly masculinized occupations in which both lesbian and straight women are clearly underrepresented, especially the latter. Occupations in which gay workers are overrepresented whereas straight men are underrepresented are: education administrators; social and community service managers; human resources, training, and labor relations specialists; social workers; designers; waiters and waitresses; hairdressers, hairstylists, and cosmetologists; meeting and convention planners; psychologists; social scientists; archivists, curators, and museum technicians; public relations specialists; massage therapists; bartenders; travel agents; and flight attendants and transportation workers and attendants, among others.

The analysis suggests that the lower segregation level of partnered lesbian women, compared with their straight counterparts, is not the result of a high representation of the former in masculinized occupations but a lower underrepresentation in many of them. The analysis for partnered gay men leads to similar conclusions: they are not highly concentrated in strongly feminized occupations (despite some exceptions), although they do have a higher presence in this kind of occupations (e.g., those related to education) than their straight counterparts. On the other hand, gay men are strikingly underrepresented in many of the most masculinized occupations.

In order to keep a certain level of homogeneity in the population under study, let us consider now that in our economy we only have workers living with a partner—thus removing the effect of uncoupled workers—so that the benchmark against which we compare the distribution of each group is now the occupational structure of workers living in partnership (see Figure 5 and Table 3).[7]
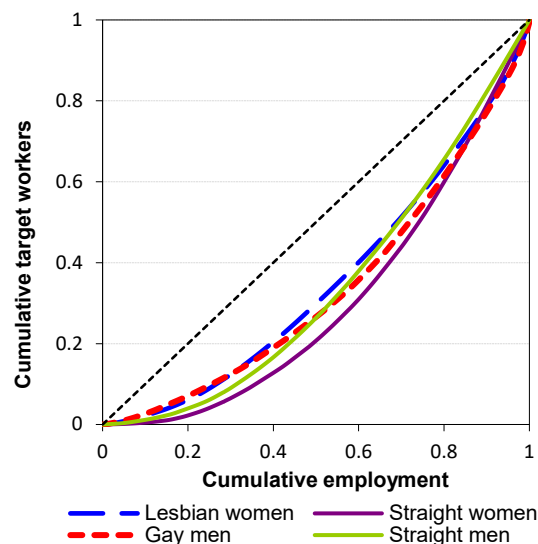

Figure 5. Local segregation curves for gender-sexual orientation groups (benchmark: employment of couples)

This second analysis also reveals that partnered lesbian women have less segregation than straight women—the difference between them is huge in many cases—making the latter the most segregated group according to all the indices. The ranking between partnered gay and straight men depends again on the index used (the curves intersect), but now with some indices, the values of these two groups are barely different. In fact, both groups' segregation curves are closer than before. In contrast, the curves for partnered heterosexual men and women

---

[7] Unpartnered workers have a demographic composition that is clearly different from that of partnered workers, either heterosexuals or homosexuals. They are younger, have lower educational achievements, and a lower proportion of whites (see Table 7 in the Appendix). This is likely to explain some of the discrepancies that exist between the occupational sorting of this group and that of the other groups.

are not as similar as they were when we considered all workers (the segregation of men falls and that of women rises).

	$\Phi_{0.1}$	$\Phi_{0.5}$	Φ_1	Φ_2	D	G
Lesbian women	0.201	0.163	0.152	0.158	0.202	0.296
Straight women	0.409	0.320	0.266	0.232	0.294	0.391
Gay men	0.210	0.182	0.181	0.218	0.243	0.327
Straight men	0.255	0.211	0.179	0.151	0.238	0.316

Table 3. Segregation levels of gender-sexual orientation groups using several local segregation indices (benchmark: employment of couples)

4. Quantifying the Economic Consequences of Segregation

Next we explore whether the differences just shown work to the advantage or disadvantage of particular groups. Let us start by using total employment as the benchmark economy. Figure 6 reveals that, according to index Γ, all groups of women are worse off than their male counterparts. Lesbian women—who have lower gains than gay and straight men—are the only group of women who enjoys a remarkable monetary gain associated with their occupational sorting. In fact, that monetary gain is 9.4% of the average (hourly) wage of the economy (see Table 4). These women even have a small gain within occupations (Δ is equal to 3.6%), so that their (per capita) earning gap ratio, *EGap*, is equal to 13% of the (hourly) average wage. It seems that the low segregation level of lesbian women showed above goes hand-in-hand with an occupational sorting that is relatively advantageous for them compared with that of straight partnered women.

Gay men stand out as the group with the largest gains. The (per capita) monetary gain of this group associated with their occupational sorting is nearly 20% of the average (hourly) wage of the economy and its *Egap* is over 37%, surpassing by almost 7 percentage points that of straight partnered men. Figure 6 also shows that both unpartnered women and men have important monetary losses associated with their occupational sorting (and also losses within occupations). All of the above patterns remain when using the well-being measures (see Table 4).[8]

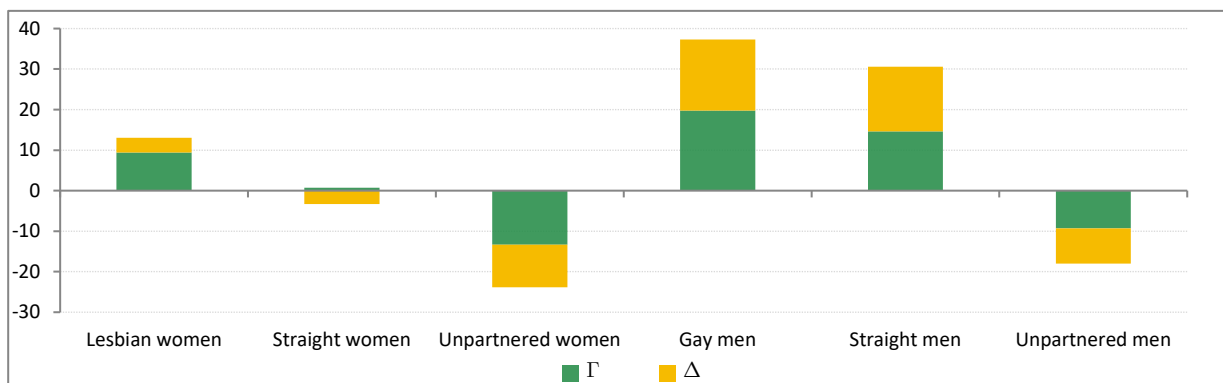Figure 6. Monetary losses (gains) of the gender-sexual orientation groups due to segregation and to discrepancies within occupations (the values for Γ and Δ are multiplied by 100). Benchmark: total employment

---

[8] Ψ_1 and Ψ_2 are the well-being gains due to the occupational sorting of the group, Ω_1 and Ω_2 are the well-being gains arising within occupations, and WAD_1 and WAD_2 are the total well-being gains, for $\varepsilon = 1$ and 2.

	Γ	Δ	EGap	Ψ_1	Ω_1	WAD$_1$	Ψ_2	Ω_2	WAD$_2$
Lesbian women	9.4	3.6	13.0	9.7	3.6	13.3	11.2	4.0	15.2
Straight women	0.8	-3.3	-2.6	1.5	-1.9	-0.3	2.3	-0.7	1.5
Unpartnered women	-13.4	-10.5	-23.9	-13.8	-11.3	-25.1	-16.9	-14.8	-31.7
Gay men	19.8	17.5	37.3	18.1	13.5	31.6	19.5	12.5	32.0
Straight men	14.6	16.0	30.6	14.1	13.1	27.2	16.3	13.1	29.4
Unpartnered men	-9.3	-8.7	-18.0	-8.9	-8.9	-17.9	-9.9	-10.8	-20.7

Table 4. Monetary and well-being losses (gains) of the gender-sexual orientation groups due to segregation, discrepancies within occupations, and total losses (gains) (all values are multiplied by 100). Benchmark: total employment

To obtain a clearer image of the position of men and women in same-sex couples in the labor market with respect to that of men and women in different-sex couples, we now restrict our population to workers living in couple households. This means that the benchmark against which we compare the occupational sorting of our target groups is now the occupational structure of individuals living with a partner rather than total employment (Figure 7 and Table 5).

As expected, the positions of the four groups living in couple households worsen since we have dropped from the sample the two groups having the worst situations in the labor market. In this new scenario, partnered gay men still face more gains associated with their occupational sorting than straight men, regardless of measure used (although the gap decreases with the inequality aversion parameter). The former have a monetary gain of almost 11% of the average wage of coupled individuals while the gain for the latter is almost 6%.
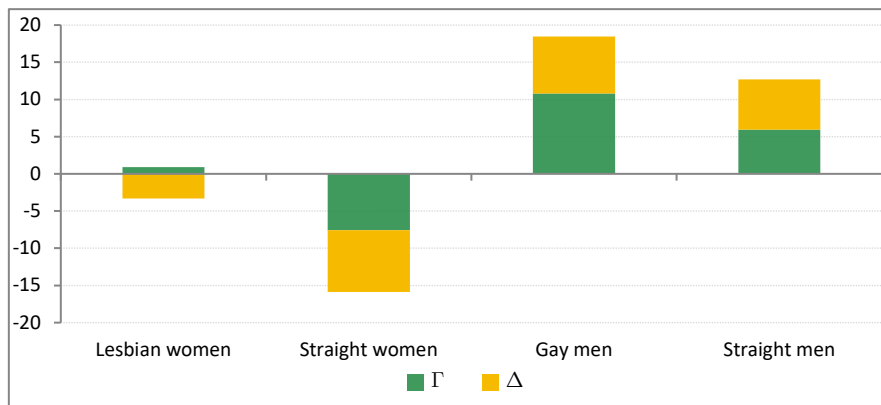

Figure 7. Monetary losses (gains) of the gender-sexual orientation groups due to segregation and discrepancies within occupations (the values for Γ and Δ are multiplied by 100). Benchmark: employment of couples

The situation of women in same-sex couple households shows remarkable differences with respect to our previous analysis. Although they still have gains associated with their distribution across occupations—which remain much lower than those of men—those benefits are now almost negligible: their monetary gain is below 1% of the average wage of the benchmark economy. Consistent with the segregation levels shown in the previous section, we find that women in different-sex couples now have important losses associated with their sorting, a disadvantage with respect to other coupled workers that the inclusion of unpartnered workers in our previous analysis did not allow us to detect in all its magnitude. The monetary loss of these women due to segregation is above 7% of the average wage of the benchmark economy. Their losses are even higher when

using the well-being measure Ψ_2, which is more averse to inequality among the individuals of the group than Ψ_1 is (Table 5).

	Γ	Δ	EGap	Ψ_1	Ω_1	WAD$_1$	Ψ_2	Ω_2	WAD$_2$
Lesbian women	0.9	-3.3	-2.4	1.2	-3.4	-2.2	1.3	-4.5	-3.2
Straight women	-7.6	-8.3	-15.9	-7.6	-8.2	-15.8	-9.3	-9.7	-19.0
Gay men	10.8	7.7	18.5	10.1	6.1	16.2	10.7	5.6	16.3
Straight men	5.9	6.8	12.7	6.0	5.8	11.7	7.3	6.1	13.3

Table 5. Monetary and well-being losses (gains) of the gender-sexual orientation groups due to segregation, discrepancies within occupations, and total losses (gains) (all values are multiplied by 100). Benchmark: employment of couples

When exploring what happens within occupations, we find that partnered heterosexual women have disadvantages with respect to men, a pattern that is also shared by homosexual women. Lesbian women have total earning losses of above 2% of the average wage of the benchmark economy because their small advantage due to their occupational sorting is more than offset by the losses that they face within occupations (with respect to men living in couple households). The losses of heterosexual women associated with their situation within occupations are even greater (above 8% of the average wage of the benchmark economy), which means this group has a total earning loss of nearly 16%. These findings are consistent with the earning advantage of lesbian workers compared with straight women that has been shown in previous studies (Antecol et al. 2008; Daneshvary et al. 2008). Consequently, segregation explains about half of the monetary losses of straight women living with a partner, while the disadvantage of lesbian women living with a partner arises from their lower wages within occupations. For gay men, the advantage due to their occupational sorting is greater than their advantage within occupations, while for straight men the two components have a similar weight.

5. Conditional Losses (Gains) of the Groups and Main Explanatory Factors

We now explore whether the advantages or disadvantages of the four groups of partnered individuals that we have just shown arise from differences in basic characteristics (educational achievements, race/ethnicity composition, immigration profile, English proficiency, and age) or are due to other reasons. For that purpose, we built a counterfactual economy in which gay men, lesbian women, and straight women have the same attributes as the group of reference, namely straight men. If we calculate the losses (gains) of these three groups in this new economy, labeled conditional losses (gains), and we find them to barely change, then the characteristics mentioned above are not the reason why these groups differ from straight men. If, on the contrary, the conditional loss (gain) of a group varies a lot, we can say that a large part of that variation comes from differences in characteristics between the two demographic groups. To undertake this conditional analysis we follow the propensity score method proposed by DiNardo et al. (1996) in the case of wage discrimination and adapted by Gradín (2013) to explore occupational segregation. Following the latter, the contribution of each explanatory factor is obtained using the Shapley decomposition, which is widely used in the literature on income distribution (Sastre and Trannoy 2002; Shorrocks 2013). This decomposition is path independent (i.e., the contribution of each factor does not depend on the intermediate steps, or path, we follow to obtain it) and it sums up the total change in the losses (gains), which improves the initial decomposition proposed in DiNardo et al. (1996) and followed by Antecol et al (2008).

In order to build our counterfactual economy, we first follow a cross-tabulation process that involves crossing the explanatory variables mentioned above to define the "cells." Then, we re-weight these cells so that the cells for gay men, lesbian women, and straight women have the same relative size as they have in the reference group

(straight men). In the case of lesbian women, for example, this means that the weight of lesbian women of a certain age, who possess a bachelor's degree and were born in the U.S., etc., is going to be the same as that of their straight male counterparts. However, we keep the occupational sorting of lesbian women with those attributes unaltered. Identical steps are followed in the case of gay men and straight women. This method leads to a new economy and, in particular, a new occupational structure. Continuing with the above example, the procedure involves a change in the occupational sorting of lesbian women due not only to changes in the size of the group's cells but also to changes in the economy's occupational structure.

5.1 Propensity Score Procedure

We explain this method focusing on lesbian women. The process involves analogous changes also for gay men and straight women. We first partition the group of lesbian women into the mutually exclusive subgroups or "cells" resulting from cross-tabulation based on the main attributes mentioned above. Next, we obtain the counterfactual density function (across occupations) that lesbian women would have if they had the same attributes as the reference group, straight men, while keeping unchanged the distribution of every subgroup of lesbian women across occupations. For that purpose, the original observations of lesbian women in the sample have to be reweighted by the probability, predicted by a logit model, that each person—who has specific attributes in terms of education, race/ethnicity, immigration profile, English proficiency, and age—belongs to the group of straight men rather than to the group of lesbian women.

Let us denote by $z \equiv (z_1,...,z_k)$ the vector of the k covariates describing the attributes of each subgroup and by W a dummy variable standing for gender-sexual orientation membership, where the variable is equal to 1 in the case of straight men and 0 in the case of lesbian women. The weighting scheme, Ψ_z, that we have to use to make lesbian women have the same characteristics (other than gender and sexual orientation) as straight men can be easily estimated from the data. Thus,

$$\Psi_z = \frac{\dfrac{\Pr(W=1|z)}{\Pr(W=1)}}{\dfrac{\Pr(W=0|z)}{\Pr(W=0)}} = \frac{\Pr(W=0)}{\Pr(W=1)}\frac{\Pr(W=1|z)}{\Pr(W=0|z)},$$

where the first term can be approximated by the ratio between the population samples of both demographic groups and the second term can be obtained by estimating the probability of an individual with attributes z belonging to the group of straight men (rather than to the group of lesbian women) using a logit model over the pool sample with observations from both groups:

$$\Pr(W=1|z) = \frac{\exp(z\hat{\beta})}{1+\exp(z\hat{\beta})},$$

where $\hat{\beta}$ is the associated vector of estimated coefficients. By taking similar steps for gay men and straight women, this method allows us to construct a counterfactual economy resulting from including the corresponding employment adjustments of the three groups. As already mentioned, the loss (gain) of a group obtained using this counterfactual is labeled conditional loss (gain). The difference between conditional and unconditional losses (gains) provides a measure of the losses (gains) that are actually explained by our covariates z and this difference can be disaggregated into the detailed contribution of each factor by using the Shapley decomposition. One could get the new weights for each target group just calculating relative frequencies for

each cell among straight men, but the logit estimation allows computing the decomposition of the change between the conditional and the unconditional analysis in an easy way.[9]

5.2 Do Differences in Characteristics Explain the Disparities among Gender-Sexual Orientation Groups?

In our conditional analysis we control for five key characteristics: educational achievements (4 levels: less than high school, high school diploma, some college, and bachelor's degree), race/ethnicity (5 groups: non-Hispanic whites, blacks, and Asians, Hispanics of any race, and others),[10] years of residence in the U.S. (3 classes: born in the country, up to 10 years, and more than 10 years), English proficiency (4 classes: speaking only English, speaking English very well, well, and not well or not at all), and age (3 groups: between 16 and 29, between 30 and 54, and above 54). The results of the logit regressions yield the expected findings given the characteristics of the groups (see Online Resource, Table A1). Lesbian and gay workers show the expected signs and levels in the coefficients of the variables that tend to differentiate each of these groups from straight men. These are the dummies related to the high educational achievements of homosexuals, their lower shares of immigrants and people with low English level (especially in the case of lesbian women), and also their lower proportion of people above 54 years of age (see Appendix, Table 7).

Using the employment of couples as the benchmark economy, we find that the conditional segregation levels of lesbian women and gay men are lower than the unconditional ones (index D is now 0.184 and 0.196, respectively) while the segregation of the other two groups barely changes. This corroborates the findings of our unconditional analysis: homosexual workers are more evenly distributed across occupations than heterosexuals. However, the numbers in Figure 8 (and Table 6), which report the conditional gains (losses) of the four groups, display a different scenario from the one shown in the unconditional analysis (compare these numbers with those in Figure 7 and Table 5).

Although the disadvantages that the two groups of women have within occupations barely change, their occupational sorting now brings them more disadvantages that before. This is especially the case for lesbian women, for whom Γ changes from 0.9% to -4.7%. As a consequence, the losses of these two groups are now larger. The conditional earning gap ratios of lesbian and straight women are -7.9% and -17.1%, respectively, of the average wage of partnered workers. Furthermore, the occupational sorting of lesbian women explains a large part of its conditional earning gap ratio (a pattern that also occurs in the case of straight women). In addition, the conditional earning gap ratio for gay men is much lower than the unconditional one (although it remains positive, with a value of 6.2% of the average wage of partnered workers). They fare worse than straight men within occupations (3.8% versus 6.8%) and also have a less advantageous occupational sorting (2.4% versus 7.1%). Table 6 also shows that all these findings remain when using well-being measures. Consequently, lesbian women fare better than straight women while gay men fare worse than their straight counterparts, which is in line with previous studies on sexual orientation wage gap (Allegretto and Arthur 2001; Black et al. 2003;

---

[9] To obtain the contribution of education, for example, we use the logit coefficients as follows: First, we calculate the prediction of $\Pr(W = 1|z)$ by assuming that all coefficients except those of education dummies are zero, and then we compare the conditional loss (gain) resulting from this counterfactual to the unconditional loss (gain) of the group. Next, we calculate the prediction of that probability while assuming zero coefficients for all covariates except for education and one other covariate (e.g., immigration). The resulting counterfactual is compared to the counterfactual where only immigration is taken into account. The analysis is repeated but with race (rather than immigration) as the other covariate accounted for, and so on. This is how we obtain the marginal contribution of education when this is the second factor we control for. We follow the same procedure while considering all possible sequences where education is the third (rather than the second) factor to change. By averaging over all possible marginal contributions of education, we compute the contribution of this covariate to explain the difference between conditional and unconditional losses (gains) of the group.

[10] Due to their small group size, Native Americans have been joined with the group of individuals from other races.

Blandford 2003; Daneshvary et al. 2008; Klawitter 2015). [11] However our study allows us to quantify the role of occupational sorting in explaining the economic position of each group. Occupational sorting explains about 59.5%, 38.7%, 51.5%, and 51.4% of the earning gap ratios of lesbian women, gay men, straight women, and straight men, respectively.
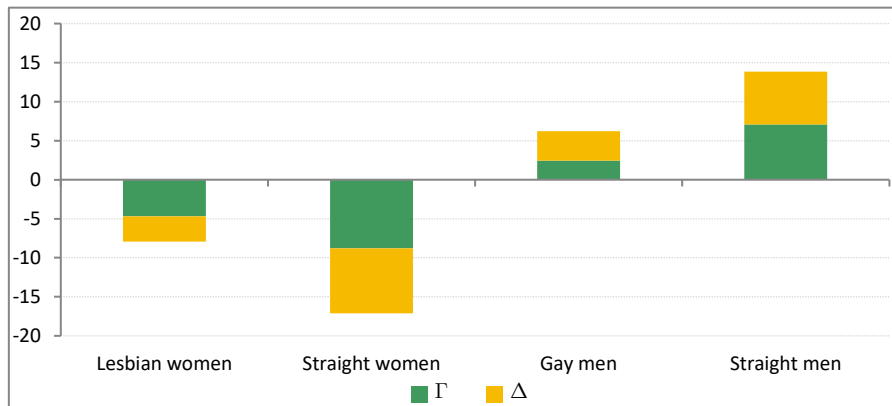

Figure 8. Conditional monetary losses (gains) of the gender-sexual orientation groups due to segregation and discrepancies within occupations (the values for Γ and Δ are multiplied by 100). Benchmark: employment of couples

	Γ	Δ	EGap	Ψ_1	Ω_1	WAD$_1$	Ψ_2	Ω_2	WAD$_2$
Lesbian women	-4.7	-3.2	-7.9	-4.7	-3.6	-8.3	-5.9	-5.4	-11.3
Straight women	-8.8	-8.3	-17.1	-8.9	-8.3	-17.2	-11.0	-10.1	-21.1
Gay men	2.4	3.8	6.2	2.1	2.7	4.7	1.9	2.1	4.0
Straight men	7.1	6.8	13.8	7.2	5.9	13.1	8.8	6.3	15.1

Table 6. Conditional monetary and well-being losses (gains) of the gender-sexual orientation groups due to segregation, discrepancies within occupations, and total losses (gains) (all values are multiplied by 100). Benchmark: employment of couples

As Figure 9 displays, the reduction in the relative earnings of gay men and lesbian women (associated with their occupational sorting) after controlling for characteristics arises mainly from the decrease in the educational achievements and the rise in the proportion of the immigrant population with a low English proficiency in these two groups' counterfactual distribution. The first (second) factor accounts for 96.2% (17.8%) and 108.8% (34.7%) of the change for gay men and lesbian women, respectively. [12] The positive effect that increasing the

---

[11] In any case, the lesbian wage advantage seems to strongly depend, though, on the indicator used for sexual orientation and also on how labor intensity and experience are accounted for, whether the analyses take into account that lesbian women previously married to men may have different experiences than other lesbian women (Daneshvary et al. 2009), or even the household division of labor within same-sex female couples, with a "primary" earner and a "secondary" one (Schneebaum 2013). There are also recent works that show situations where lesbian women get lower wages than straight women (Curley 2018) and also lower economic outcomes when other dimensions are taken into consideration (harassment at work, difficulty in finding a job, stress, etc.), as is the case of young lesbian women in Australia (Carpenter 2008). Conducting an experiment based on job applications for clerical jobs in Austria, Weichselbaumer (2003) finds that there exists discrimination against lesbian women. Using a similar methodology, Drydakis (2011) also shows that low-qualified lesbian women in Greece have a lower probability to receive an invitation for an interview, and if they are hired, their wages are lower than those of straight women.

[12] These numbers can be seen in the Online Resource (Table A2). As also shown in that table, the role of the different factors is similar when exploring the EGap.

share of racial minorities (from the re-weighting procedure) would have on the earnings for gay men and lesbian women is surprising. This factor alone would make index Γ rise. This suggests there is a substantial discrepancy in terms of position in the labor market between racial minorities living in different-sex couples and the ones we identify in our dataset as living in same-sex couples. Controlling for age also makes Γ increase because the lower age of same-sex couples reduces their earnings, especially those of lesbian women.
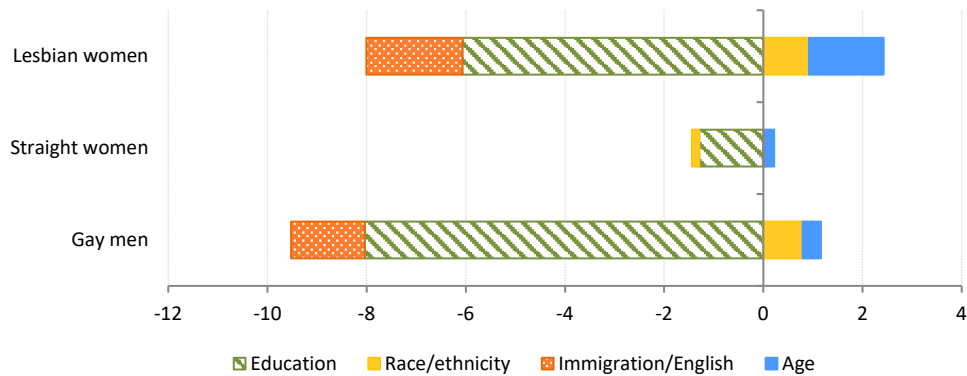

Figure 9. Conditional monetary losses (gains) minus monetary losses (gains) of each group associated its occupational sorting (the values for Γ are multiplied by 100). Factors' contributions are measured using the Shapley decomposition (benchmark: employment of couples)

This counterfactual analysis has allowed us to show the extent to which the economic position of partnered gay men and lesbian women associated with their occupational sorting derives from their higher educational levels.[13] Once that effect is taken into account, gay men do not seem to benefit from the privileges that men in different-sex couples enjoy, while partnered lesbian women do share their lower position in the labor market with their straight counterparts.

6. Final Comments

Previous studies on labor market issues have shown that the crossing of gender boundaries is more common for homosexuals (Antecol et al. 2008; Baumle et al. 2009). Lesbian women are more likely to be found in male-dominated occupations than their straight counterparts, whereas gay men tend to be less concentrated in highly masculinized occupations relative to straight men. However, these studies are based on either a broad classification of occupations or on only a few detailed occupations, which does not allow for an accurate view of the phenomenon. This paper has expanded on this literature by using a fine classification of occupations (with more than 450 titles) and by quantifying the extent of occupational segregation for each gender-sexual orientation group. Using the employment of couples as the benchmark economy, this analysis has shown that lesbian women are the group with the lowest segregation level according to most indices (i.e., this is the group more evenly distributed across occupations), whereas straight women have the highest level. Thus, only 20% of lesbian women would have to switch occupations to be evenly distributed across occupations whereas this percentage is almost 30% for straight women. The results for men are less conclusive, with unevenness being higher for either homosexuals or heterosexuals depending on the index used. In any case, about 24% of either gay or straight men would have to change occupations to achieve an even distribution.

Keeping the employment of couples as the benchmark economy, this study has also revealed that the (unadjusted) earning gap ratio of men in same-sex households (i.e., the average wage of the group minus the

---

[13] Murray-Close and Schneebaum (2017) claim that having a bachelor's degree brings this sexual minority advantages beyond the economic ones since it allows gay people to get into more tolerant workplaces.

average wage of partnered workers divided by the latter) is positive whereas the earning gap ratio of women in same-sex households is negative (18.5% versus -2.4%). For lesbian women this wage disadvantage is lower than it is for straight women (-15.9%), which is consistent with earlier findings (Antecol et al. 2008; Daneshvary et al. 2008). However, as opposed to what occurred in the 1990s (Badget 1995; Allegretto and Arthur 2001; Black et al. 2003; Antecol et al. 2008), the wage advantage of gay men happens to be now higher than that of straight men (18.5% versus 12.7%), which has likely fueled the myth of gay affluence.

Gay men and lesbian women identified as such using the ACS have some characteristics that may explain these findings. We recalculated the earning gap ratio of each group while controlling for the basic characteristics of the groups, such as education, age, racial/ethnic composition, and immigration profile (including not only years of residence in the country but also English proficiency) and found that men in different-sex couples would keep having an important wage advantage, this advantage now being much higher than that of gay men (13.8% and 6.2% of the adjusted average wage of partnered workers, respectively). In contrast, all women would have a larger wage disadvantage (-17.1% and -7.9% for straight and lesbian women, respectively). The disadvantage (advantage) of gay men (lesbian women) compared with their straight counterparts, once we control for basic characteristics, is consistent with previous studies (Allegretto and Arthur 2001; Black et al. 2003; Blandford 2003; Daneshvary et al. 2008; Klawitter 2015). However, by using a common reference (i.e., the average wage of partnered workers), our analysis has enabled us to take things a step further by ranking the four groups.

Our results have also revealed that occupational segregation plays an important role in explaining the economic position of these four groups. A large part of the conditional wage advantage of straight men arises from their occupational sorting, which results in occupations with lower earnings for the other groups. If gay men had the same characteristics as straight partnered men have, the earnings gains of the former associated with their occupational sorting would be a third of that of the latter (2.4% versus 7.1% of the adjusted average wage of partnered workers). Likewise, if lesbian women had the same characteristics, other than gender and sexual orientation, as straight partnered men have, the small unadjusted gain that these women derive from their occupational sorting would not only vanish but would turn into a loss (-4.7% of the adjusted average wage of coupled workers). This conditional loss would, however, be smaller than that of "similar" straight partnered women (-8.8%). Therefore, the occupational sorting of partnered gay men and lesbian women bring them lower earnings than that of "similar" straight men and higher earnings than that of "similar" straight women.

Unlike Antecol et al. (2008), who find that occupations play a minor role in explaining the sexual orientation wage gap, our analysis has shown that the wage disadvantage that gay men and, especially, lesbian women have compared with "similar" straight men is largely explained by differences in occupational sorting. This discrepancy in findings may emerge from two sources. First, as usually done in the literature, these authors compare women with women and men with men, rather than using a common reference—e.g., partnered workers. Second, their analysis is based on 21 occupational categories whereas we considered 453 occupational categories. When they use the Oaxaca-Blinder decomposition, the component associated with "unobservable characteristics" happens to be large when comparing gay and (married) straight men. Likewise, the (small) change they find in the sexual orientation wage gap—using the decomposition proposed by DiNardo et al. (1996)—when making the occupational sorting of gay people the same as that of their straight counterparts with "similar" characteristics would probably be larger if a finer classification of occupations could be used.

This paper has expanded on the existing literature employing a methodology that enables working with a large list of occupations, which seems essential to quantify the effect of a group's occupational sorting on its earnings. We decomposed the earning gap ratio of each group into two components: one arising from the group's occupational sorting and the other resulting from what happens to the group within occupations. This revealed that, after controlling for characteristics, the occupational sorting of lesbian women, gay men, straight women, and straight men explains, respectively, 59.5%, 38.7%, 51.5%, and 51.4% of the earning gap ratios of these

groups. This novel decomposition offers a clearer picture of the role of occupational sorting than the one given in previous studies, which include occupation just as another covariate to control for in their econometric analyses.

In line with Antecol et al (2008), our analysis also suggests that the high educational achievements of individuals in same-sex couples give them some "protection" in the labor market. We have shown that it is the higher educational attainments of gay people and, to a lower extent, their lower immigration profile that protects workers in same-sex couples, revealing that gay men do not enjoy the privilege of straight partnered men and that lesbian women are not free from the mark of gender. All of this may help to explain why same-sex couples (and, especially, lesbian couples) are more likely to be poor relative to married different-sex couples, after controlling for family characteristics that affect poverty (Albelda et al. 2009; Schneebaum and Badgett 2018). Further research is called for to delve more deeply into the heterogeneity issues within same-sex couples and into the composition of these households so that we can better understand how the position of homosexuals in the labor market affects their economic status.

References

Albelda, R., Badgett, L., Schneebaum, A., & Gates, G. (2009). Poverty in the Lesbian, Gay, and Bisexual Community. The Williams Institute, UCLA School of Law.

Allegretto, S. & Arthur, M. (2001). An Empirical Analysis of Homosexual/Heterosexual Male Earnings Differential: Unmarried and Unequal? Industrial and Labor Relations Review, 54(3), 631-646.

Alonso-Villar, O. & del Río, C. (2010). Local versus Overall Segregation Measures. Mathematical Social Sciences, 60, 30-38.

Alonso-Villar, O. & del Río, C. (2017a). Occupational Segregation and Well-being. Review of Income and Wealth, 63 (2), 269–287.

Alonso-Villar, O. & del Río, C. (2017b). The Occupational Segregation of African American Women in the United States: A Look at its Evolution from 1940 to 2010. Feminist Economics, 23(1), 108-134.

Alonso-Villar, O. & Del Río, C. (2017c). Mapping the Occupational Segregation of White Women in the US: Differences across Metropolitan Areas. Papers in Regional Science, 96(3), 603-625.

Antecol, H., A. Jong, & Steinberger, M. (2008). The Sexual Orientation Wage Gap: The Role of Occupational Sorting and Human Capital. Industrial and Labor Relations Review, 61(4), 518-543.

Badgett, M.V.L. (1995). The Wage Effects of Sexual Orientation Discrimination. Industrial and Labor Relations Review, 48(4), 726-739.

Badgett, M.V.L. (2001). Money, Myths, and Change: The Economic Lives of Lesbians and Gay Men. Chicago: University of Chicago Press.

Badgett, M.V.L. (2007). Discrimination Based on Sexual Orientation. A Review of Literature in Economics and Beyond. In M.V.L. Badgett & J. Frank (Eds.), Sexual Orientation Discrimination. An International Perspective. New York: Routledge.

Badgett, M.V.L. & King, M. (1997). Gay and Lesbian Occupational Strategy. In A. Gluckman & B. Reed (Eds.), Homo Economics: Capitalism, Community, and Lesbian and Gay Life. London: Routledge.

Baumle, A.K., Compton, D., & Poston Jr., D.L. (2009). Same-Sex Partners: The Social Demography of Sexual Orientation. Albany, NY: SUNY Press.

Berg, N. & Lien, D. (2009). Sexual Orientation and Self-Reported Lying. Review of Economics of the Household, 7(1), 83-104.

Bianchi, S. & Rytina, N. (1986). The Decline of Occupational Sex Segregation during the 1970s: Census and CPS Comparisons. Demography, 23, 79-86.

Blandford, J.M. (2003). The Nexus of Sexual Orientation and Gender in the Determination of Earnings. Industrial and Labor Relations Review, 56(4), 622-642.

Black, D.A., Makar, H.R., Sanders, S.G. & Taylor, L.J (2003). The Earnings Effects of Sexual Orientation. Industrial and Labor Relations Review, 56(3), 449-469.

Blau, F., Brummund, P., & Liu, A. (2013). Trends in Occupational Segregation by Gender 1970-2009: Adjusting for the Impact of Changes in the Occupational Coding System. Demography, 50, 471-492.

Blau, F. & Kahn, L. (2017). The Gender Wage Gap: Extent, Trends, and Explanations. Journal of Economic Literature, 55(3), 789-865.

Carpenter C. (2007a). Revisiting the Income Penalty for Behaviorally Gay Men: Evidence from NHANES III. Labour Economics, 14(1), 25–34.

Carpenter C. (2007b). Do Straight Men "Come Out" at Work Too? The Heterosexual Male Marriage Premium and Discrimination against Gay Men. In M.V.L. Badgett & J. Frank (Eds.), Sexual orientation discrimination. An International Perspective. New York: Routledge.

Carpenter C. (2008). Sexual Orientation, Income, and Non-Pecuniary Economic Outcomes: New Evidence from Young Lesbians in Australia. Review of Economics of the Household, 6, 391-408.

Cotter, D., DeFiore, J., Hermsen, J., Marsteller Kowalewski, B. & Vanneman, R. (1997). All Women Benefit: The Macro-level Effect of Occupational Integration on Gender Earnings Equality. American Sociological Review, 62, 714-734.

Curley, C. (2018). Sexual Orientation, Sexual History, and Inequality in the United States. Feminist Economics, 24(1), 88-113.

Daneshvary, N., Waddoups, C.J. & Wimmer, B.S. (2008). Educational Attainment and the Lesbian Wage Premium. Journal of Labor Research, 29, 365-379.

Daneshvary, N., Waddoups, C.J. & Wimmer, B.S. (2009). Previous Marriage and the Lesbian Wage Premium. Industrial Relations, 48(3), 432-453.

Del Río, C. & Alonso-Villar, O. (2015). The Evolution of Occupational Segregation in the U.S., 1940-2010: The Gains and Losses of Gender-Race/Ethnic Groups. Demography, 52 (3), 967-988.

DiNardo, J., Fortin, N., & Lemieux, T. (1996). Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach. Econometrica, 64, 1001-1044.

Drydakis, N. (2011). Women's Sexual Orientation and Labor Market Outcomes in Greece. Feminist Economics, 17(1), 89–117.

Giddings, L., Nunley, J.M., Schneebaum, A. & Zietz, J. (2014). Birth Cohort and the Specialization Gap Between Same-Sex and Different-Sex Couples. Demography, 51, 509-534.

Gradín, C. (2013). Conditional Occupational Segregation of Minorities in the US. Journal of Economic Inequality, 11, 473–493.

Jepsen, C. & Jepsen, L. (2015). Labor-Market Specialization within Same-Sex and Difference-Sex Couples. Industrial Relations, 54(1), 109-130.

Klawitter, M. (2015). Meta-Analysis of the Effects of Sexual Orientation on Earnings. Industrial Relations, 54(1), 4-32.

Leppel, K. (2009). Labour Force Status and Sexual Orientation. Economica, 76, 197-207.

Levanon, A., England, P. & Allison, P. (2009). Occupational Feminization and Pay: Assessing Causal Dynamics Using 1950-2000 U.S. Census Data. Social Forces, 88, 865-981.

Moir, H. and Selby Smith, J. (1979). Industrial Segregation in the Australian Labour Market. Journal of Industrial Relations, 21, 281-291.

Mouw, T. & Kalleberg, A. (2010). Occupations and the Structure of Wage Inequality in the United States, 1980s to 2000s. American Sociological Review, 75, 402-431.

Murray-Close, M. & Schneebaum, A. (2017). The Educational Attainment of Lesbians and Gay Men. Unpublished paper.

Oreffice, S. (2011), Sexual Orientation and Household Decision Making. Same-Sex Couples' Balance of Power and Labor Supply Choices. Labour Economics, 18, 145-158.

Petersen, T. & Morgan, L. (1995). Separate and Unequal: Occupation-Establishment Sex Segregation and the Gender Wage Gap. American Journal of Sociology, 101, 329-365.

Plug, E., Webbink, D. & Martin, N. (2014). Sexual Orientation, Prejudice, and Segregation. Journal of Labor Economics, 32(1), 123-159.

Ragins, B.R. (2004). Sexual Orientation in the Workplace: The Unique Work and Career Experiences of Gay, Lesbian and Bisexual Workers. In Martocchio, J. (Ed.), Research in Personnel and Human Resources Management, 23, 35-120. Bingley (UK): Emerald Books.

Reskin, B., Lowell H., & Hirsh, E. (2004). Picturing Segregation: The Structure of Occupational Segregation by Sex, Race, Ethnicity, and Hispanicity. Unpublished paper, University of Washington.

Ruggles, S., Genadek, K., Goeken, R., Grover, J. & Sobek, M. (2015). Integrated Public Use Microdata Series: Version 6.0 [Machine-readable database]. Minneapolis: University of Minnesota.

Sastre, M. & Trannoy, A. (2002). Shapley Inequality Decomposition by Factor Components: Some Methodological Issues. Journal of Economics, 9, 51-89.

Schneebaum, A. (2013). The Economics of Same-Sex Couple Households: Essays on Work, Wages, and Poverty. Dissertation, Paper 818, University of Massachusetts.

Schneebaum, A. & Badgett, M.V.L. (2018). Poverty in Lesbian and Gay Couple Households. Feminist Economics, doi: 10.1080/13545701.2018.1441533.

Shorrocks, A. (2013). Decomposition Procedures for Distributional Analysis: A Unified Framework Based on the Shapley Value. Journal of Economic Inequality, 11, 99-126.

Solomon, S., Rothblum, E. & Balsam, K. (2005). Money, Housework, Sex, and Conflict: Same-Sex Couples in Civil Unions, Those Not in Civil Unions, and Heterosexual Married Siblings. Sex Roles, 52 (9/10), 561-575.

Schwartz, C. & Graf, N. (2009). Assortative matching among same-sex and different-sex couples in the United States, 1990–2000. Demographic Research 8(21), 843-878.

Tebaldi, E. & Elmslie, B. (2006). Sexual Orientation and Labour Supply. Applied Economics, 38(5), 549-562.

Tilcsik, A., Anteby, M. & Knight, C.R. (2015). Concealable Stigma and Occupational Segregation: Toward a Theory of Gay and Lesbian Occupations. Administrative Science Quarterly, 60(3), 446-481.

Ueno, K., Peña-Talamantes, A. & Roach, T. (2013). Sexual Orientation and Occupational Attainment. Work and Occupations, 40(1), 3-36.

Weichselbaumer, D. (2003). Sexual Orientation Discrimination in Hiring. Labour Economics, 10, 629-642.
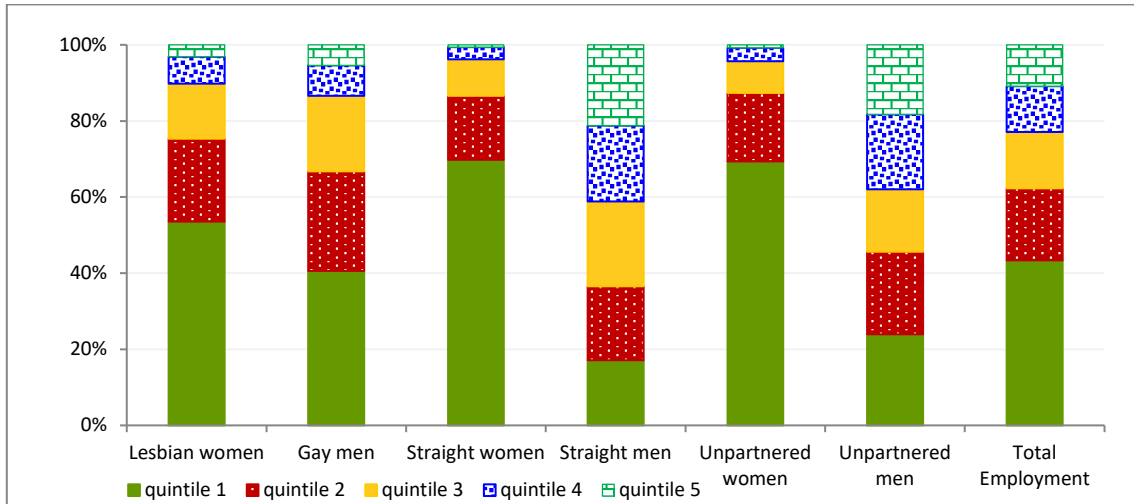
Appendix

Figure 10. Employment share of each gender-sexual orientation group in each quintile of male employment (employment ranked by masculinization rates of occupations)

	Lesbian women	Straight women	Unpartnered women	Gay men	Straight men	Unpartnered men	Total
Education							
Less than High School	4.0	5.9**	10.3**	4.2	9.8**	14.1**	9.8
High School	15.8	22.4**	23.8**	14.6	25.2**	30.1**	25.1
Some College	31.8	32.9**	37.9**	29.5	29.1**	32.8**	32.8
Bachelor's Degree	48.4	38.9**	28.1**	51.7	36.0**	23.1**	32.4
Race/ethnicity							
White	75.8	72.6**	57.8**	75.5	70.9**	59.4**	66.1
Black	7.7	7.4**	17.9**	5.1	7.3**	12.2**	10.7
Asian	2.6	6.0**	5.1**	4.1	5.4**	5.4**	5.5
Hispanic	11.1	12.1**	16.4**	13.0	14.5**	20.5**	15.5
Other	2.9	1.9**	2.8*	2.3	1.8**	2.6**	2.2
Years of residence							
Born in the US	91.1	83.1**	84.1**	86.3	80.3**	80.7**	82.0
Immigrant <=10 years	1.5	3.5**	4.2**	2.6	3.9**	6.9**	4.5
Immigrant > 10 years	7.3	13.4**	11.7**	11.1	15.8**	12.4**	13.5
English							
Only English	88.3	81.4**	79.0*	84.3	78.9**	75.2**	78.8
Very well	8.9	11.0**	13.4**	11.5	11.3**	14.0**	12.2
Well	1.7	3.9**	3.7**	2.4	5.2**	4.7**	4.4
Not well or not at all	1.1	3.7**	4.0**	1.8	4.6**	6.2**	4.5
Age							
Young (16-29)	16.4	12.9**	37.8**	12.6	10.0**	43.9**	23.9
Middle-aged (30-54)	64.7	64.4**	43.6**	68.1	63.9**	43.6**	55.4
Older adults (>=55)	19.0	22.7**	18.7**	19.4	26.1**	12.5**	20.7

Table 7. Demographics of gender-sexual orientation groups.

Note: In columns 2 and 3 (5 and 6), a single asterisk ($p<0.05$) or double asterisk ($p<0.01$) indicates a statistically significant difference in means compared with lesbian women (gay men)